Aug. 2, 1949. M. W. TAYLOR 2,477,706

UNDERWATER BREATHING MASK

Filed Sept. 23, 1948 2 Sheets-Sheet 1

FIG. 1.

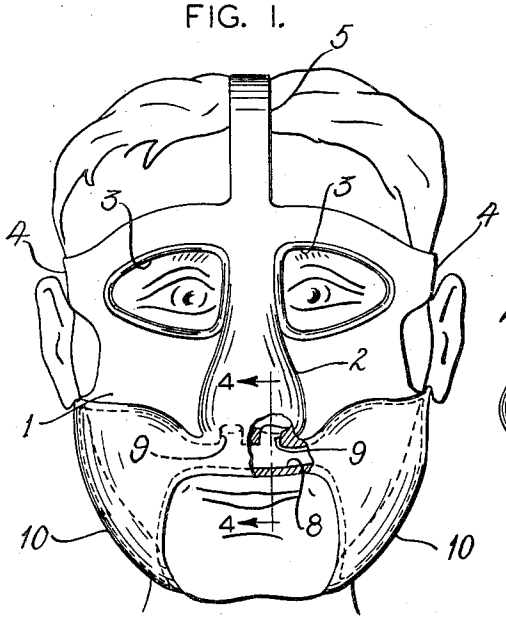


FIG. 2.

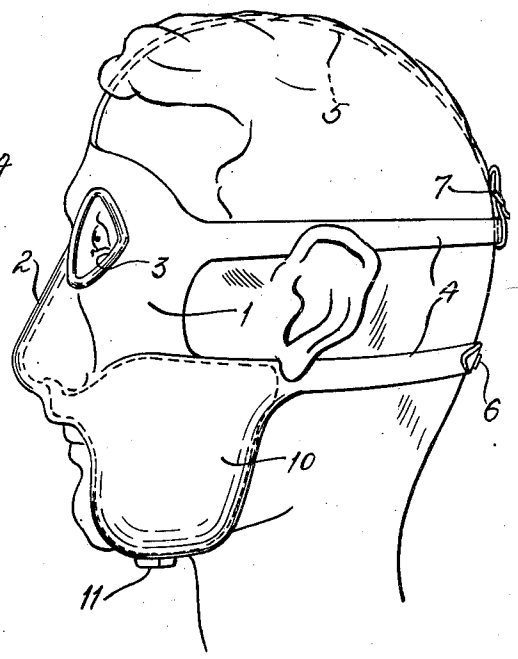


FIG. 3.

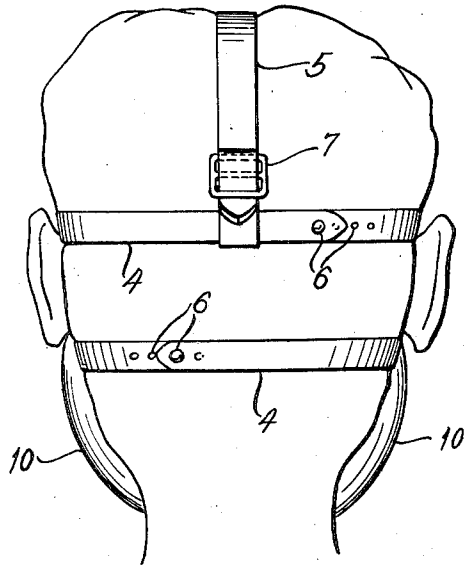
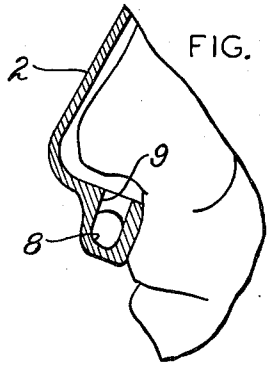


FIG. 4.



INVENTOR:

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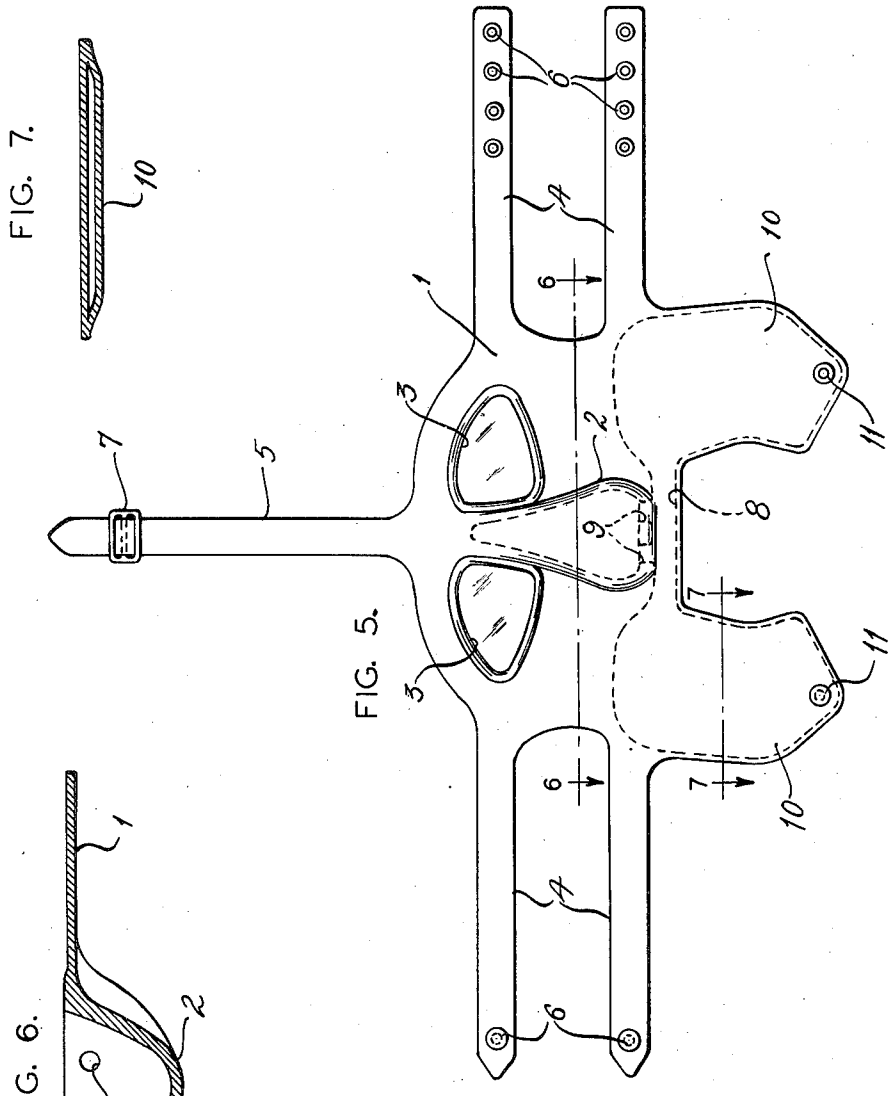
by Cara & Cara & Gravely.

HIS ATTORNEYS.

Aug. 2, 1949. M. W. TAYLOR 2,477,706

UNDERWATER BREATHING MASK

Filed Sept. 23, 1948 2 Sheets-Sheet 2



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UNITED STATES PATENT OFFICE

2,477,706

UNDERWATER BREATHING MASK

Max W. Taylor, Maplewood, Mo.

Application September 23, 1948, Serial No. 50,865

9 Claims. (Cl. 128—141)

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This invention relates to breathing masks for use in fishing, swimming, working and sightseeing under water. It has for its principal objects to provide a simple, inexpensive, lightweight, leakproof, comfortably fitting mask that will permit rebreathing under water of a supply of air taken into the lungs above the water. Other objects are to permit easy respiration in all positions of the head in the water. The invention consists in an underwater breathing mask having a portion that covers the nose and forms a breathing chamber beneath the nostrils and leaves the mouth entirely uncovered, and a pair of collapsible intercommunicating rebreathing bags that communicate with said chamber adjacent to the nostrils and are held against opposite sides of the face below the ears and extend downwardly around the chin and slightly above the level of the nostrils. The invention also consists in the parts and in the combinations and arrangements of parts hereinafter described and claimed.

In the accompanying drawings, which form part of the specification and wherein like symbols refer to like parts wherever they occur,

Fig. 1 is a front elevational view showing an underweater breathing mask embodying my invention attached to the head of the wearer,

Fig. 2 is a side elevational view showing the mask attached to the head of the wearer,

Fig. 3 is a rear elevational view showing the mask attached to the head of the wearer,

Fig. 4 is an enlarged fragmentary vertical sectional view on the line 4—4 in Fig. 1,

Fig. 5 is a plan view showing the detached mask in the flat; and

Figs. 6 and 7 are cross-sectional views on the lines 6—6 and 7—7, respectively, in Fig. 5.

My underwater breathing mask comprises a sheet-like body portion 1 of molded plastic or other flexible water and airproof material. The mask is formed on its outer face with a substantially centrally located hollow outstanding nose covering portion 2 and has glass covered eye holes 3 located on opposite sides of the upper portion of said nose covering portion. The mask is also provided on each side, at about the level of the nose covering portion or piece 2, with two laterally extending vertically spaced straps 4 and at the top with an upwardly extending central strap 5. The side straps 4 are provided near their outer ends with suitable snap fastener elements 6, and the top strap 5 is provided adjacent to its free end with a suitable buckle 7.

The mask is provided immediately below the

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hollow nose piece 2 with a horizontal passageway 8 which opens upwardly through the bottom of said nose piece into the interior thereof through a pair of passageways 9 spaced apart longitudinally of said horizontal passageway. The horizontal passageway 8 communicates at its opposite ends with the upper portions of two depending collapsible rebreathing bags 10 formed on the front face of the body 1 of the mask at the lower corners thereof. These rebreathing bags or sacs 10 are spaced apart on opposite sides of the vertical center line of the mask and extend downwardly a considerable distance below the level of the horizontal cross passageway 8 and slightly above the latter on opposite sides of the nose piece 2. The rebreathing bags 10 are provided at their lower ends with snap fastener elements 11.

The mask is attached to the head of the wearer by placing the nose piece 2 over the nose with the portion containing the passageway 8 seating against the face between the nostrils and upper lip, extending the side straps 4 rearwardly on opposite sides of the head above and below the ears and securing said straps together at the back of the head by means of the snap fastener elements 6. The top strap 5 is extended rearwardly over the top of the head and secured to the two connected uppermost straps 4 by means of the buckle 7 carried by said top strap. The two rebreathing bags 10 are drawn beneath the chin and their lower ends overlapped and secured together by means of the snap fastener elements 11.

The mask comfortably fits the wearer's face and conforms to the contour thereof and covers the nose but leaves the mouth entirely uncovered. The bottom of the nose receiving pocket in the nose piece 2 extends below the nostrils and provides a breathing chamber therefor. The sides of the nose piece 2 and the portion which is located immediately therebelow and contains the horizontal passageway 8 forms a substantially triangular seal around the nose. The two passageways 9 in the lower end of the nose piece 2 are located directly beneath the nostrils and provide continuous communication between the latter and the connecting passageway 8 between the two collapsible rebreathing bags 10; and said bags are securely held against opposite sides of the face and beneath the chin by the lowermost straps 4 and the cooperating snap fastener elements 11 which secure said bags together at their lower ends.

In use, the air in the pair of intercommunicating rebreathing bags 10 is first withdrawn there-

from through the horizontal passageway 8, thence through the nostril passageways 9 in the lower portion of the nose piece 2 and thence through the nostrils into the lungs and is then expelled through the mouth which is left uncovered by the mask. The lungs are then filled with air drawn in through the mouth, after which the head is submerged in the water and such air is breathed regularly through the nose into and out of the collapsible rebreathing bags 10. When the oxygen in the rebreathed air is substantially consumed and the air becomes bad from the carbon dioxide taken from the body (which takes about a minute and a half) the head is raised above the surface of the water and the carbon dioxide laden air is drawn from the rebreathing bags through the nose into the lungs and expelled through the mouth. A supply of fresh air is then taken into the lungs through the mouth and respiration again continued under the water in the manner above described.

The above underwater breathing mask is simple and economical and can be quickly, easily and securely attached to the head of the wearer. The rebreathing bags 10 are firmly secured beneath the chin and are thus prevented from floating upwardly due to the buoyancy of the air. The combined capacity of the two rebreathing bags corresponds substantially to the capacity of the lungs. The cross connecting passageway 8 between the two rebreathing bags is disposed horizontally in both the erect and face-down positions of the head and thus facilitates the process of breathing under water, while the nose piece 2 and the portion therebelow containing the cross passageway 8 have sufficient rigidity to prevent portions from collapsing and interfering with the passage of air from the rebreathing bags to the nostrils.

What I claim is:

1. An underwater breathing mask having a substantially central hollow nose piece and two collapsible rebreathing side bags in continuous communication with said hollow nose piece, and means for securing said mask to the head of the wearer with said nose piece covering the nose and in sealing engagement with the face with the mouth left uncovered and for holding said side bags against opposite sides of the face.

2. The combination set forth in claim 1 wherein said mask securing means includes means for fastening the side bags beneath the chin.

3. The combination set forth in claim 1 wherein continuous communication is provided between the two side bags and the nose piece by a substantially horizontal passageway extending between said bags just below the nose piece and by a passageway extending upwardly from said horizontal passageway into the lower portion of said nose piece.

4. The combination set forth in claim 3 wherein the side bags extend slightly above the level of the bottom of the nose piece.

5. The combination set forth in claim 1 wherein continuous communication is provided between the two side bags and the nose piece by a cross passageway extending from bag to bag just below the nose piece and by two passageways spaced apart longitudinally of said cross passageway and extending upwardly therefrom into the lower portion of said nose piece.

6. The combination set forth in claim 1 wherein the mask securing means comprises side straps adapted to extend rearwardly around the head above and below the ears and a top strap adapted to extend rearwardly over the top of the head and to be secured to the uppermost side strap and means for fastening the side bags together beneath the chin.

7. An underwater breathing mask having a substantially central hollow nose piece and two collapsible rebreathing bags depending from said mask on opposite sides of said nose piece and in continuous communication therewith and with one another, and means for securing said mask to the head of the wearer with said nose piece covering the nose and in sealing engagement with the face with the mouth left uncovered and for holding said bags against opposite sides of the face and beneath the chin.

8. The combination set forth in claim 7 wherein continuous communication is provided between the two bags and the nose piece by a cross passageway extending from bag to bag just below the nose piece and by two passageways spaced apart longitudinally of said cross passageway and extending upwardly therefrom into the lower portion of said nose piece.

9. The combination set forth in claim 7 wherein said mask securing means comprises side straps adapted to extend rearwardly around the head above and below the ears and a top strap adapted to extend rearwardly over the top of the head and to be secured to the uppermost side strap and means for fastening the lower ends of said bags together in overlapped relation beneath the chin.

MAX W. TAYLOR.

No references cited.